Environmental Protection Agency
National Indicator Workshop

Effective Application of Real Time Environmental Data for Public Education and Resource Management

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Pinellas County, Florida

www.pinellascounty.org

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Workshop Questions

How can indicators be used for decision-making?

How do you create relevant, sustainable
and productive application of environmental data?

The Pinellas Experience

Integrate real time environmental data with public education for citizen science, management and stewardship in Florida's most densely populated county

Building a program of real time environmental public education

Indicators: Use community application of real time data as an indicator

Requirements:

- ✓ Develop with the community, educators and resource managers
- ✓ New tools for citizen science
- ✓ Applied, powerful, relevant, and useful
- ✓ Support national and state standards of education
- ✓ Use any existing - or custom real time data streams
- ✓ Network to parks and preserves, utilities, libraries, other
- ✓ Interactive learning modules for targeted audiences
- ✓ Online classroom
- ✓ Robust educational tools

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What is EDL?

Web-based, real time distance learning…

An Interactive Virtual Field Trip…

PINELLAS COUNTY SCHOOLS

www.edlonline.org

NATIONAL FISH AND WILDLIFE FOUNDATION

NOAA

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New tools for teachers

- ✓Access from home or school
- ✓Create lesson plans
- ✓Create online quizzes
- ✓Access library of lesson plans
- ✓Create online collaborations
- ✓Save to personal storage space
- ✓Assign lessons to classes
- ✓Review and grade student work
- ✓Print graphs and reports for CLS
- ✓Communicate through email

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New tools for students

- ✓Access from home or school
- ✓Collaborate with other students
- ✓Submit assignments to teachers online
- ✓Monitor grades
- ✓Safe email environment
- ✓Fun, interactive exercises
- ✓Graphing tools and more
- ✓Easy to use templates submission of work

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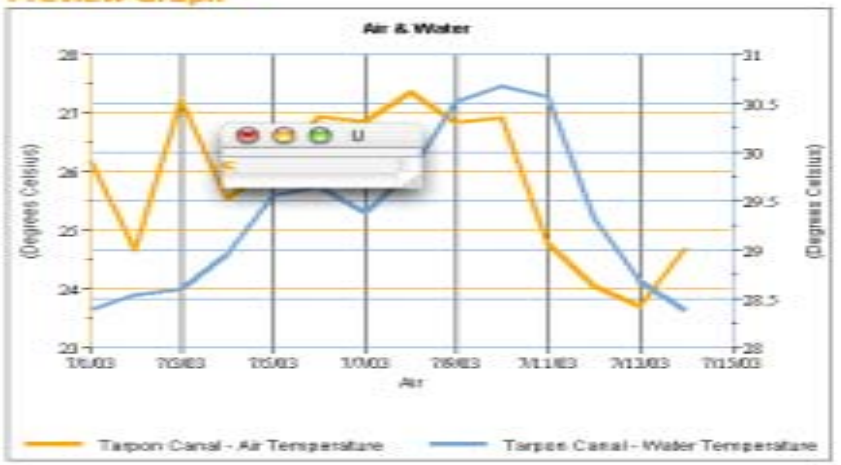
Real time data for graphing skills

Selection History

Graph Type:	Line Graph	**Table:**	TarponCanal air/water
Left Y-Axis :	Tarpon Canal - Air Temperature	**Right Y-Axis :**	Tarpon Canal - Water Temperature
Left Y-Axis Label :	(Degrees Celsius)	**Right Y-Axis Label :**	(Degrees Celsius)
X-Axis Label:	Air	**Graph Title:**	Air & Water

Preview Graph



Remote environmental sensor stations

www.edlonline.org

Connecting Florida's Classrooms…

To Florida's Environment…*in real time*

How to:
Connect with the community

- Raw data is not useable or relevant
- Must make it relevant/accessible to each user group
- Leverage community interest in their environment.

✓ **Know your audience**: Define data application by target audience to be a **daily resource** for their work

✓ **Be essential:** Build the data interface and applications **with** target audiences

✓ **Be applied:** Make application of real time data a **better way** to teach and learn

✓ **Benchmark:** Create indicators for improved learning, advanced citizen knowledge, improved public action/activism

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How to:
Create application for the data

Leverage opportunities for environmental education, awareness and citizen science
Indicators: Data use, increased knowledge and awareness

- ✓ **Interface** real time data for daily K-12 classroom application, higher education and research
- ✓ **Align** application of data with state, federal standards
- ✓ **Network** with parks, preserves, utilities and other government for on site surveys, citizen science and data collection
- ✓ **Coordinate** data collection and application with goals of natural resource management
- ✓ **Integrate** data from multiple sources
- ✓ **Partnership** for growth and application

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Pinellas County:
Indicators and real time data for public education

EDL

- Classroom application
- Research
- EDL Report

Parks and Preserves

- Weedon Island
- Brooker Creek
- Florida Botanical Gardens

Utilities

- South Cross Bayou Water Reclamation

Partnerships:
For development and data integration

Grow user community and application of data through strategic partnerships

- Pinellas County Schools
- University of South Florida College of Marine Science
- National Science Foundation - National Ecological Observatory Network (NEON)
- Global Ocean Observing System (GOOS)
- Integrated Ocean Observing System (IOOS)
- U.S. Fish and Wildlife Service, Threatened and Endangered Species System (TESS)
- U.S. Geological Survey
- National Oceanic and Atmospheric Administration

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